

IN THE CLAIMS:

1.-9. (Cancelled)

10. (Original) A floor maintenance tool comprising:

a tool motor;

a power source to power the tool motor;

a power selection switch for selecting a desired operating power for the tool

5 motor;

an actuator configured to exert a desired amount of force upon the tool motor; and

a feedback control system configured to measure the overall power exerted by the

tool motor,

digitally compare the measured motor power to a selected desired operating

10 power, and

automatically adjust the force exerted upon the tool motor to either increase or decrease the tool motor power to reach the desired operating power.

11. (Original) The floor maintenance tool of claim 10 further comprising:

determining the difference between the measured motor power and the selected desired operating power.

12. (Original) The floor maintenance tool of claim 11 wherein the force exerted upon the tool motor is adjusted only if the difference between the measured motor power and selected desired operating power is greater than the threshold power error.

13. (Original) The floor maintenance tool of claim 10 wherein the power exerted by the tool motor is measured by measuring the current through the tool motor and the voltage of the power source to the tool motor.

14. (Original) The floor maintenance tool of claim 10 wherein as the power source to the tool motor includes one or more batteries, and as the voltage level of the one or more batteries decreases, the downward force on the tool motor is increased to cause the motor to draw more current, thereby compensating for the drop in voltage and maintaining the power exerted by the motor at the selected desired power level.

15. (Original) The floor maintenance tool of claim 10 wherein a microprocessor receives a signal representative of the desired operating power and one or more signals representative of the power exerted by the tool motor and generates a signal corresponding to the amount of force that should be exerted on the tool motor.

16. (Original) The floor maintenance tool of claim 10 further comprising:
a tool frame, the tool motor coupled to the tool frame;
a propulsion motor coupled to the tool frame; and
a plurality of wheels coupled to the propulsion motor, the propulsion motor to
5 rotate the plurality of wheels.

17. (Original) The floor maintenance tool of claim 10 further comprising:
a brush coupled to the tool motor, wherein the feedback control system
configured to determine a brush power by multiplying the tool motor power by a tool motor
efficiency factor,

5 compare the brush power to the desired operating power, and
automatically adjust the force exerted upon the brush to either increase or
decrease the brush power to reach the desired operating power.

18.-22. (Cancelled)

23. (New) A floor maintenance scrubber machine for cleaning a surface comprising:
a rotary brush for contacting a surface;
an electric motor coupled to the rotary brush to rotate the rotary brush;
an actuator coupled to the electric motor, the actuator exerts one of an upward and
5 downward force on the rotary brush;
a power source coupled to the electric motor to drive the electric motor;
a current sensor electrically coupled to the electric motor to measure current
passing through the electric motor;
a voltage sensor coupled to the power source to measure a voltage level of the
10 power source;
a power selector to select a desired operating power; and
a controller coupled to the actuator, the controller configured to
receive a first signal, corresponding to the measured current from the current
sensor, and a second signal, corresponding to the measured voltage level from the voltage sensor,
15 determine an actual power exerted by the electric motor,
compare the actual power exerted by the electric motor to the desired operating
power, and

adjust the force exerted by the actuator on the rotary brush to match the actual power exerted by the electric motor to the desired operating power.

24. (New) The floor maintenance scrubber machine of Claim 23 wherein the force exerted upon the rotary brush is adjusted only if a difference between a measured electric motor power and the selected desired operating power is greater than a threshold power error.

25. (New) The floor maintenance scrubber machine of Claim 24 wherein the downward force on the rotary brush is increased to increase the actual power and the downward force on the rotary brush is decreased to decrease the actual power.

26. (New) The floor maintenance scrubber machine of Claim 23 wherein the controller determines the actual power exerted by the electric motor by multiplying the overall power exerted by the electric motor by a motor efficiency factor, compares the actual power to the desired operating power, and automatically adjusts the actuator force to either increase or 5 decrease the actual power exerted by electric motor to reduce any differences between the actual power and the desired operating power.

27. (New) The floor maintenance scrubber machine of Claim 23 wherein the power source includes one or more batteries and as a voltage capacity of the one or more batteries decreases, the downward force on the rotary brush is increased to cause the electric motor to draw more current, thereby compensating for a drop in voltage and maintaining the desired 5 operating power.